

Caring for Your Percutaneous Nephrostomy Tube

This information was prepared by the staffs of the Diagnostic Radiology Department and the Nursing Service to help you learn about your percutaneous nephrostomy tube. It will explain the normal path of urine drainage, why a nephrostomy tube is needed, how it is inserted, and how to take care of it. If you have questions about your nephrostomy tube after reading this information, feel free to speak with your nurse or doctor.

The urinary system

The urinary system removes waste and regulates the amount of water in the body. By producing and excreting urine, your body maintains a delicate balance of fluid and other important chemicals necessary for normal body functioning.

How does urine leave the body?

The parts of the urinary system that are important for you to be familiar with are the following:

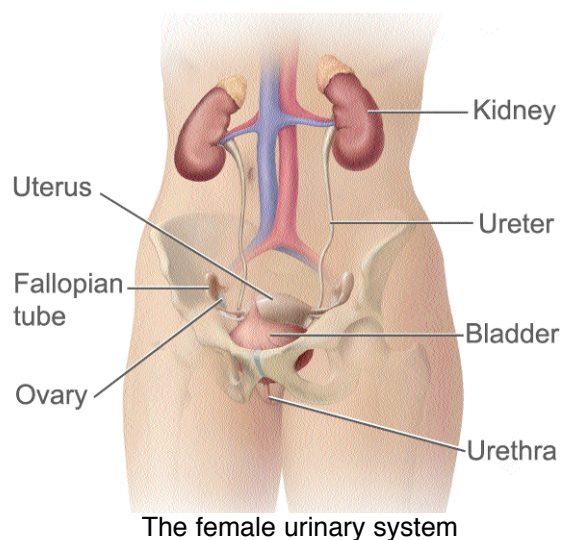
- ▶ kidneys
- ▶ renal pelvis
- ▶ ureters
- ▶ bladder
- ▶ urethra

The pathway of urine excretion begins at the kidney, a bean-shaped organ

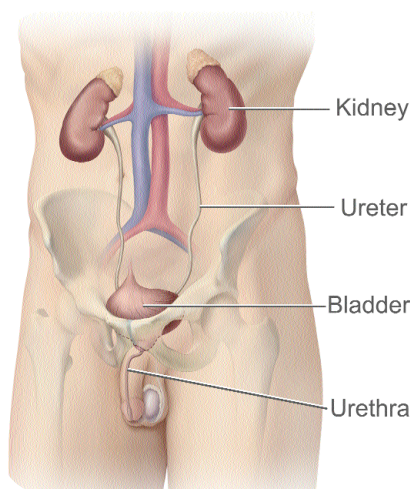
about the size of a fist. You have two kidneys: one on the right side of your body and one on the left. Each kidney is located in your lower back, below the ribs. The kidneys filter out waste products and excess water from the blood and form urine.

The renal pelvis collects urine from the kidneys. A tube, called the ureter, drains urine from each kidney and funnels it to the bladder, where urine is stored before being released from the body.

Urine leaves the bladder through another tube called the urethra. In women, the opening of the urethra is located near the vagina.



In men, the urethra is located in the penis.



The male urinary system

Why is a nephrostomy tube used?

When urine drainage is blocked, the body's waste cannot be eliminated. To prevent life-threatening complications, another pathway must be made. The method chosen to make this drainage pathway depends on the cause of the obstruction. A percutaneous nephrostomy tube is one way to reestablish drainage and eliminate waste from the body.

This long, thin, plastic tube is inserted through the kidney and into the renal pelvis. The insertion is called "percutaneous" because the tube goes through the skin and into the kidney.

What happens before the nephrostomy tube is placed?

- ▶ If you have valuables with you, leave them with a family member, or store them in the cashier's office on the first floor of the Clinical Center.
- ▶ Adults should not drink milk or eat solid food 8 hours before the procedure. Nonalcoholic liquids (water or broth) are acceptable for 2 to 3 hours before the procedure. Check with your doctor for specific instructions for adolescents and children.
- ▶ Please wear your hospital gown so that it opens in the back.

Please arrive in the Diagnostic Radiology Department about 15 minutes before your scheduled procedure. The radiologist and nurse from the special procedures section will explain the procedure's risks, alternative treatments, and answer your questions.

When you understand what will happen, the radiologist will ask you to read and sign an informed consent form giving your permission for the procedure to be performed.

The nurse will put an intravenous (I.V.) line in one of the veins in your arm. You will receive fluid and medication through this line.

You will be awake, but relaxed, and maybe a bit sleepy during the procedure. At times, the radiologist will ask you to hold your breath so that x rays taken during the procedure will turn out well.

Where will the nephrostomy tube be placed?

The nephrostomy tube will be placed directly into the renal pelvis of the kidney. The tube will drain urine into a collection bag outside the body.

To drain the right kidney, the tube will leave the body on the right side of the back near the waistline. To drain the left kidney, the tube will come out on the left side of the back near the waistline. Some patients may need two tubes, one to drain each kidney. The nephrostomy tube will be connected to a urinary collection bag. The drainage bag should be emptied when it becomes half full and before bedtime.

How is the nephrostomy tube placed?

Before the tube is placed, the radiologist must know the exact location of your kidney. A special picture using sound waves, called an ultrasound, will be made to guide placement of the nephrostomy tube. To see your kidney even better, the radiologist may inject intravenous contrast dye through the I.V. line in your arm so that your kidney shows up clearly on x-rays.

Next, a medication will be injected into the skin of your back to numb the area where the tube will be placed. A small cut will then be made in the skin, and a needle will be inserted into the renal pelvis. A special dye, called “contrast,” will be injected through this needle to make the renal pelvis visible on x-rays. An x-ray will be taken to confirm the position of this needle.

Then, a guide wire will be placed through this needle and into the renal pelvis, and the needle will be removed. At this point, the nephrostomy tube will be placed over the guide wire and into the kidney. This part of the procedure may be uncomfortable, and the radiologist may give you more pain medication through your intravenous line.

When the nephrostomy tube is properly placed, the guide wire will be removed. Contrast dye will be injected again, and another x-ray will be taken to make sure the tube is in the right place.

Some nephrostomy tubes can be secured firmly by forming a loop inside the kidney. The tube may also be attached to the skin by stitches or tape can be used for more support.

Will I urinate even though I have a nephrostomy tube?

If your other kidney works normally, you will still need to urinate because urine from this kidney will fill your bladder. If you have nephrostomy tubes in both kidneys, you may need to urinate for these reasons:

- ▶ Your therapy may relieve the blockage and allow urine to drain into your bladder.
- ▶ Urine may drain into your nephrostomy bags as well as into your bladder.

Your doctor will explain how your bladder will function when nephrostomy tubes are in place.

How do I care for the nephrostomy tube?

Changing the dressing

Keep the skin around the nephrostomy tube clean. To prevent infection, a sterile dressing should be placed over the site where the tube leaves your body. . The location of the nephrostomy tube may make it difficult for you to reach. You may need help from another person to do the dressing change and flushing. The way you care for a newly inserted tube is different than the care you use once the site has healed.

For the first 2 weeks after nephrostomy tube placement, the sterile gauze dressing should be changed once a day. If you prefer to use sterile transparent dressing, it should be changed every 3 days.

After the first 2 weeks, the dressing should be changed at least twice a week (for example, every Monday and Thursday). You must change your dressing if it is wet.

When to shower

You may shower 48 hours after the tube has been inserted, but the tube site must stay dry. You may protect the dressing with plastic wrap taped to your skin so that the dressing is completely covered.

The tube site should be kept dry for the next 14 days. After that time, when the site has healed, you may shower without the dressing and plastic wrap.

The tube site should be cleaned with a mild liquid soap and water, and rinsed well. A single use washcloth should be used to clean the site. Bathing or swimming is not recommended as long as the tube is in place.

Special precautions for you and your helpers

If you need assistance in changing your dressing, your helper should follow these precautions:

- ▶ If you are receiving chemotherapy, your helper should wear gloves when emptying your urine. Wearing gloves will help prevent exposure to chemotherapy drugs. Ask your chemotherapy nurse how long your helper will need to wear gloves after your treatment. Gloves should always be worn when handling body fluids or secretions of another person.
- ▶ If you received radioisotopes, your helper must wear gloves while assisting you. Ask your nurse in the Nuclear Medicine Department how long your assistant will need to wear gloves. (These precautions are especially important for women who are of childbearing age or who are pregnant.)
- ▶ At least two people should know how to help you change your nephrostomy tube dressing.

Nephrostomy dressing change: after the new tube is placed

Supplies

- ▶ transparent dressing or gauze dressing
- ▶ sterile normal saline
- ▶ plastic bag or zip-lock bag for disposing of old dressing
- ▶ gloves
- ▶ skin prep or barrier swab stick (optional)
- ▶ sterile gauze
- ▶ tape or securing device*

*** Note** Sometimes, in order to keep the tube stable, a plastic platform is put where the tube comes through the skin. If this done, your nurse will teach you how to care for this device.

Procedure

1. Thoroughly wash your hands with soap and water.
2. Put on gloves.
3. Gather the supplies.
4. Remove the old dressing carefully. Dispose of dressing and gloves in a plastic bag.
5. Wash your hands. Put on clean gloves. Clean the skin at the tube site with gauze moistened with normal saline. Start at the tube site and work outward in a circular motion to cover a circle 3 to 4 inches in diameter. Discard the gauze. Let the

tube site dry. Apply skin prep (optional) on skin around the tube.

- 6 Cover the tube site with sterile gauze or transparent dressing.
7. Secure the tube with a piece of tape placed 2 1/2 inches from the exit site.
8. Remove your gloves and dispose of them. Wash your hands.

Nephrostomy tube dressing change: when the site has healed

Supplies

- ▶ gauze or transparent dressing
- ▶ tape to secure tube
- ▶ skin prep or barrier film swab stick (optional)
- ▶ gloves

Procedure

1. Thoroughly wash your hands. Caregiver should wash hands as well.
2. Gather the equipment. Caregiver should put on gloves.
3. Carefully remove the old dressing and dispose of it in a plastic bag.
4. Clean the area around the tube site with liquid soap and water. Rinse the area well, and then pat dry. Apply skin prep (optional).
5. Apply a gauze or transparent dressing over the tube site.
6. Look at the nephrostomy as you sit and stand; check for kinks in the tube. If there are kinks or you see no urine flow, reposition the tube.

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7. Tape the nephrostomy tube to the skin below the dressing (2 1/2 inches from the exit site).
 8. Remove gloves and dispose of them. Wash your hands.

When your nephrostomy tube is changed, the way you care for it will depend on how the insertion site looks. If the site is dry and intact without bleeding, continue your usual site care by showering and changing the dressing.

When there is bleeding or infection, notify your doctor and ask how to care for the site.

How do I flush the nephrostomy tube?

When a nephrostomy tube is first inserted, you may have blood in your urine. If your doctor recommends that you flush your nephrostomy tube, follow the instructions you will be given.

Flush the nephrostomy tube through the rubber stopper on the three-way stopcock attached to your nephrostomy drainage system. (A three-way stopcock is a plastic valve with three openings and a sidearm that controls the direction of fluid through the device.) Your doctor or nurse will connect the nephrostomy tube to the stopcock. The drainage bag will be attached to the stopcock.

The third side (irrigation port) will have a rubber cap for flushing. All three-way stopcocks do not function the same way. Check the direction of fluid flow for the device you use. The flushing port should be in the

OFF position when not in use. If your urine output stops, check the sidearm position and tube for kinks.

To see a demonstration of this procedure, [click here](#).

Flushing procedure

Supplies

- ▶ 5- to 10-ml interlink syringe
- ▶ vial adapter
- ▶ alcohol swap
- ▶ Vial of preservative-free normal saline (salt and water) is the only fluid used to flush your nephrostomy tube.

Procedure

1. Thoroughly wash your hands with soap and water.
2. Gather the supplies.
3. Snap off the cap from the saline. Attach the vial adapter. Wipe the top with alcohol. Withdraw 5 ml of normal saline. Do not flush with more than 5 ml of saline unless directed by your doctor.
4. Turn the stopcock off to the drainage bag.
5. Swab the rubber injection port on the stopcock with another alcohol pad
6. Insert the syringe into the injection port. Slowly push in the normal saline. Do not pull back. If you cannot push in the saline, check the position of the stopcock sidearm and the tube for kinks. If you still cannot easily flush in the saline, call your doctor.

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7. Remove the syringe. Dispose the used syringe in a proper container. For example, you may use a coffee can with a lid or milk jug. When the can container is full, tape the lid shut. Then, take it to a local hospital or clinic for disposal.
 8. Point the sidearm towards the proper drainage position.
 9. Check for urine in the tube or drainage bag.

When to flush

Flushing is usually done every day, but you may need to do it more often the first few days after your nephrostomy tube is inserted. When your urine drains easily and no longer contains blood or blood clots, talk with your doctor or nurse about how often your tube will need to be flushed. Some doctors request that you flush the tube daily; others do not ask you to do this. If your doctor does not want you to flush your nephrostomy tube, remove the three-way stopcock.

How often must the nephrostomy tube be changed?

Because there is mucus and fibrin in urine, all nephrostomy tubes eventually become clogged and need to be changed. Every 2 to 3 months, you may need to come to the Diagnostic Radiology Department to have your tube changed.

The procedure for changing a nephrostomy tube is usually shorter than that for the first

placement. Many nephrostomy tube changes are done on an outpatient basis and do not require the patient to stay in the hospital overnight.

How do I care for the drainage bags?

Changing drainage bags

Drainage bag should be changed at least every 7 days. If the drainage bag becomes dirty, foul smelling, or is punctured, it should be changed sooner. Here is how you change bags.

Supplies

- ▶ gloves for care giver
 - ▶ drainage bag
 - ▶ 2 alcohol pads
 - ▶ tape
 - ▶ securing straps
1. Wash your hands thoroughly with soap and water. Caregiver should wash hands and put on gloves.
 2. Gather your equipment.
 3. Swab the end of the drainage tubing attached to the nephrostomy tube.
 4. Disconnect the drainage bag from the tube. Put the used bag aside.
 5. Swab the end of the tube.
 6. Connect a new bag.
 7. Secure the drainage bag to calf, thigh, or waist with tape or straps.

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8. Remove gloves and dispose of them.
Wash your hands (including care giver.)

Lifestyle changes

Sexual activity

Your sexual function should be the same as it was before the nephrostomy tube placement. When you plan to engage in sexual activity, empty the drainage bags and attach them to the inside of the garment worn on the upper body. This will help protect the tube and prevent dislodgment.

Emotional concerns

When you have a nephrostomy tube placed, it is usually related to other processes taking place in your body. This can be a very emotional period as you learn to cope with change.

It is important to express your feelings and concerns with loved ones. Members of your health care team (nurse, doctor, and mental health nurse) also can provide support and guidance during this adjustment period. Counselors are available to help you cope with the changes you may be experiencing. You may ask your primary nurse to make appointments for you with these health professionals.

Social activities

The following hints can help you enjoy social activities.

- ▶ Dress in loose-fitting clothing.
- ▶ Before going out, check the drainage bags for small leaks. Make sure that the bags are dry on the outside and that your clothing is dry.
- ▶ For extra peace of mind during outings, tape the tube connections. Also, tape the three-way stopcock arm in place.

Things to remember about your nephrostomy drainage system

To maintain your nephrostomy drainage system in good working order, keep the drainage bag below the level of the kidneys to prevent urine from backing up into the kidneys. If the system is opened (tubes disconnected), the connector should be cleaned with an alcohol swab before reconnecting.

It is important to drink a lot of fluids. Ask your doctor how much you should drink to keep your kidneys working well.

Call your doctor:

- ▶ If you have a temperature above 101 degrees Fahrenheit or 38 degrees Celsius
- ▶ If you have back pain or side pain
- ▶ If you have redness, swelling, tenderness, or drainage around the tube
- ▶ If you have leakage of urine around the tube site or from the nephrostomy tube
- ▶ If you have low urine output or dark, foul-smelling urine

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- ▶ If urine changes color to pink or red
 - ▶ If you have no urine draining in the collection bag for 2 hours.
 - ▶ If you are unable to flush the tube
 - ▶ If the tube falls out, do not attempt to reinsert it yourself.

If you have these any of the symptoms, notify your NIH doctor.

This information is prepared specifically for persons taking part in clinical research at the National Institutes of Health Clinical Center and may not apply to patients elsewhere. If you have questions about the information presented here, talk to a member of your health care team.

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<http://www.cc.nih.gov/comments.shtml>



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